

CLAIMS

1. A hydraulic cylinder apparatus, comprising:

a pair of hydraulic cylinders that are coupled to a driven member, are placed parallel to each other, and extent/contract
5 in synchronization with each other;

a control valve that controls supply/discharge of hydraulic fluid from/to the pair of the hydraulic cylinders;

an elastic support mechanism that supports the control valve to each of the pair of the hydraulic cylinders between the
10 pair of the hydraulic cylinders;

metallic piping that connects the control valve and each of the pair of the hydraulic cylinders and leads hydraulic fluid controlled by the control valve; and

curved portions that are provided at some midpoints of the
15 metallic piping and flexibly deform in accordance with relative displacement of each of the pair of the hydraulic cylinders, wherein:

a difference in the relative displacement of each of the pair of the hydraulic cylinders with respect to the control valve
20 is absorbed.

2. The hydraulic cylinder apparatus according to claim 1, wherein:

the pair of the hydraulic cylinders are located on both
25 sides of the driven member, and the control valve and the metallic piping are placed symmetrically with respect to a center line between the pair of the hydraulic cylinders.

3. The hydraulic cylinder apparatus according to claim 2, further comprising:

a base plate on which the control valve is mounted, wherein:

the base plate is placed between the pair of the hydraulic
5 cylinders and is coupled to each of the pair of the hydraulic
cylinders through the elastic support mechanism provided on both
sides of the base plate.

4. The hydraulic cylinder apparatus according to claim 3,
10 wherein:

the control valve is mounted on a face of the base plate
opposite to the driven member.

5. The hydraulic cylinder apparatus according to claim 3,
15 wherein:

the metallic piping includes piping connected to one of
hydraulic pressure chambers of the pair of the hydraulic
cylinders and piping connected to the other of the hydraulic
pressure chambers of the pair of the hydraulic cylinders,

20 wherein:

in each piping, the curved portions are curved within an
approximate right angle range on surfaces forming right angles
with each other.

25 6. The hydraulic cylinder apparatus according to claim 5,
wherein:

the metallic piping is formed by connecting a single pipe
connected to the control valve and a pair of branch pipes which

are connected respectively to the pair of the hydraulic cylinders, and the curved portion provided in the single pipe and the curved portion provided in each of the branch pipes are located on surfaces at right angles to each other.

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7. The hydraulic cylinder apparatus according to claim 6, wherein:

the single pipe includes the curved portion curving in a U shape, and is connected respectively to the pair of the branch
10 pipes on the rear face of the control valve.